

IN THE CLAIMS

We claim:

1. A structure comprising:

a first pair of overlay bars disposed in a substrate and left exposed, said first pair of overlay bars being equidistant from a first centerline;

a second pair of overlay bars disposed in said substrate and left embedded below a layer of material, said second pair of overlay bars being equidistant from a second centerline; and

a third pair of overlay bars disposed in said layer of material, said third pair of overlay bars being equidistant from a third centerline, wherein deviation among said first, second, and third centerlines is a measurement of overlay.

2. The structure of claim 1 wherein a first separation between said first centerline and said third centerline is a post-etch overlay.

3. The structure of claim 1 wherein a second separation between said second centerline and said third centerline is a post-develop overlay.

4. The structure of claim 1 wherein a third separation between said first centerline and said second centerline is an exposed-to-embedded offset in overlay.
5. The structure of claim 4 wherein said exposed-to-embedded offset in overlay can correct a post-develop overlay to predict a post-etch overlay.
6. The structure of claim 1 wherein said first pair of features comprises trenches filled with dielectric material.
7. The structure of claim 1 wherein said second pair of features comprises trenches filled with dielectric material and covered with transparent material.
8. The structure of claim 1 wherein said third pair of features comprises said transparent material.
9. The structure of claim 1 wherein said first pair of features comprises holes filled with a first opaque material.

10. The structure of claim 1 wherein said second pair of features comprises holes filled with said first opaque material and covered with a second opaque material.
11. The structure of claim 1 wherein said third pair of features comprises said second opaque material.
12. The structure of claim 1 wherein said first pair, said second pair, and said third pair of features are parallel.
13. A method comprising:
 - forming a first set and a second set of features in a substrate;
 - covering said first and second set of features with material;
 - forming a third set of features in said material and removing said material to expose said first set of features, leaving said second set of features embedded below said material;
 - measuring post-etch overlay between said first set and said third set of features; and
 - measuring post-develop overlay between said second set and said third set of features.
14. The method of claim 13 further measuring an exposed-to-embedded offset between said first set and said second set of features.

15. The method of claim 14 wherein said exposed-to-embedded offset corrects subsequent measurements of post-develop overlay to predict post-etch overlay.
16. The method of claim 13 wherein said material is transparent.
17. The method of claim 13 wherein said material is opaque.
18. A method comprising:
 - determining centerline of a first set of features formed in a substrate and not covered with a material;
 - determining centerline of a second set of features formed in said substrate and covered with said material, said second set and said first set of features being formed together in said substrate;
 - determining centerline of a third set of features formed in said material;
 - determining overlay of said third set to said first set of features; and
 - determining overlay of said third set to said second set of features;
19. The method of claim 18 further determining overlay of said first set to said second set of features.

20. The method of claim 18 wherein said centerline is determined optically.